

Title (en)

FOOD FREEZING DEVICE, FOOD FREEZING METHOD AND FROZEN FOOD

Title (de)

VORRICHTUNG ZUM EINFRIEREN VON LEBENSMITTELN, VERFAHREN ZUM EINFRIEREN VON LEBENSMITTELN UND EINGEFRORENE LEBENSMITTEL

Title (fr)

DISPOSITIF DE CONGÉLATION D'ALIMENTS, PROCÉDÉ DE CONGÉLATION D'ALIMENTS ET ALIMENT CONGELÉ

Publication

EP 3949753 A4 20221221 (EN)

Application

EP 20782714 A 20200327

Priority

- JP 2019067913 A 20190329
- JP 2020013933 W 20200327

Abstract (en)

[origin: EP3949753A1] To provide a food freezing device, a food freezing method, and a frozen food with which an eating quality as before quickly frozen can be obtained even when foods such as cooked rice foods and noodles are quickly frozen. A food freezing device 400 of the present invention includes: a freezing tank 410 that stores an ice slurry S in a state of being maintained at equal to or less than -10°C ; a hanger 431 that holds an α -starch-containing frozen food F in the ice slurry S stored in the freezing tank 410; an ice slurry supply means (420, 450, 456, and 300) for supplying the ice slurry into the freezing tank 410; and a flow means (130) for causing the ice slurry to flow such that the ice slurry S collides with the frozen food F at equal to or greater than a predetermined relative speed. The frozen food F is a cooked rice food such as nigiri sushi or noodles such as udon noodles that contain a large amount of α -starch.

IPC 8 full level

A23L 3/36 (2006.01); **A23L 7/10** (2016.01); **A23L 7/109** (2016.01); **F25C 1/00** (2006.01); **F25D 13/00** (2006.01); **F25D 13/06** (2006.01)

CPC (source: EP US)

A23L 3/001 (2013.01 - US); **A23L 3/36** (2013.01 - EP); **A23L 3/362** (2013.01 - US); **A23L 7/10** (2016.07 - EP); **A23L 7/109** (2016.07 - EP US); **A23L 17/00** (2016.07 - US); **F25C 1/145** (2013.01 - US); **F25D 13/06** (2013.01 - US); **F25D 13/065** (2013.01 - EP); **A23V 2002/00** (2013.01 - US)

Citation (search report)

- [IY] JP 2018021745 A 20180208 - TS PLANT KK
- [Y] US 5761913 A 19980609 - LIBERMAN BARNET L [US], et al
- [XAI] JP H0538266 A 19930219 - WORLD KOBORI KK
- [A] KALAISELVAM S ET AL: "Numerical investigation of heat transfer and pressure drop characteristics of tube-fin heat exchangers in ice slurry HVAC system", APPLIED THERMAL ENGINEERING, PERGAMON, OXFORD, GB, vol. 29, no. 8-9, 1 June 2009 (2009-06-01), pages 1831 - 1839, XP025993252, ISSN: 1359-4311, [retrieved on 20080925], DOI: 10.1016/J.APPLTHERMALENG.2008.09.010
- See references of WO 2020203732A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

EP 3949753 A1 20220209; **EP 3949753 A4 20221221**; JP 2020162524 A 20201008; JP 7296098 B2 20230622; US 2022192235 A1 20220623; WO 2020203732 A1 20201008

DOCDB simple family (application)

EP 20782714 A 20200327; JP 2019067913 A 20190329; JP 2020013933 W 20200327; US 202017599488 A 20200327